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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,856	04/10/2007	Yasuaki Hashizume	14321.92	1386
22913	7590	10/16/2007		
WORKMAN NYDEGGER 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			EXAMINER HEALY, BRIAN	
			ART UNIT 2883	PAPER NUMBER
			MAIL DATE 10/16/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/598,856

Applicant(s)

HASHIZUME ET AL.

Examiner

Brian M. Healy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5 and 9 is/are rejected.
- 7) ☒ Claim(s) 2-4, 6-8 and 10-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 20070330.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Allowable Subject Matter***

Claims 2-4, 6-8 and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Neither the teachings of Nakaya, U.S.P. No. 5,974,216 or Wiesmann et. al., U.S. Patent Application Publication No. U.S. 2004/0141691A1 (references discussed below) taken either singly or in combination teaches or suggests the claimed absolute value of waveguide birefringence at optical coupler sections equal to or greater than  $3.5 \times 10^{-4}$  (claim 2); that the length of the waveguide arms is designed to be equal to an integer multiple of an optical beat length (claims 3,4); at least one of the two arm waveguides has a phase controller (claims 6-8) and the substrate used is a silicon substrate and the waveguides used are of silica based glass (claims 10-12).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Nakaya, U.S.P. No. 5,974,216.

Nakaya 216' teaches (Figs.1-8) a planar lightwave circuit type variable optical attenuator having waveguides formed on a substrate 12 an input waveguide 7a, a first directional optical coupler 11a, 11b, two arm waveguides 8d,7b connecting the couplers, an output waveguide 7j where two different polarized modes are propagated TE,TM and attenuation can be controlled using an applied voltage to electrodes at the coupling regions of each coupler 8a-d with values of mode coupling attenuation that is less than -25dB (see Fig.2), which clearly, fully meets Applicant's claimed limitations.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaya, U.S.P. No. 5,974,216 in view of Wiesmann et. al., U.S.Patent Application Publication No. US 2004/0141691A1.

The teachings of Nakaya 216' has already been discussed. Nakaya 216' does not teach the use of a silicon substrate with silica based waveguides and the use of a phase controller electrode in conjunction with an integrated optical variable attenuator device

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Wiesmann et. al., U.S. Patent Application Publication No. US 2004/0141691A1 teaches (Figs.1-11) a variable optical attenuator including first and second optical couplers 8,9 including two inputs A,B and two outputs C,D with connecting waveguides (mad of a silica based material and formed on a silicon substrate) with phase control electrodes 6,7, which are used for altering/controlling polarized light signals.

Since both Nakaya 216' and Wiesmann et. al. 169' are from the same field of endeavor, i.e. optical variable attenuator devices , the purpose of using a silicon substrate with silica based waveguides and phase control electrodes, as is taught by Wiesmann et. al., would have been recognized in the pertinent art of Nakaya 216'.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the variable optical attenuator of Nakaya 216' by including the phase control electrodes used on silica based waveguides formed on a silicon substrate, as is taught by the optical variable attenuator of Wiesmann et. al., for the purpose of varying the phase of polarized light signals.

The following references are also cited by the Examiner as being pertinent and/or related art: Kambe, U.S.P. No. 6,714,706 (Figs.1-29), Ng et. al., U.S.P. No. 6,867,904 (Figs.1-8) and Nishimura et. al., U.S.P. No. 6,507,680 (Figs.1-11).

A copy of PTO-1449 will be included in this office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Healy whose telephone number is (571)272-

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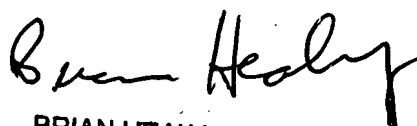
2347. The examiner can normally be reached on Compressed schedule Mon-Fri. 6AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571)272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**Brian M. Healy**  
**Primary Examiner**  
**Art Unit 2883**

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BRIAN HEALY  
PRIMARY PATENT EXAMINER